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THE BANDED-SPORE TRICHIAS.

BY GEO. A. REX, M. D., PHILADELPHIA, PA.

Of the three Trichias, *Tr. chrysosperma*, Bull., *Tr. affinis*, De By., and *Tr. Jackii*, Rostfki., characterized by reticulated or banded spores, the first is the only one as yet recorded as an American species. While it is undoubtedly our common form, plants answering the descriptions of the other two species, except in one important particular, are not rare. The chief points of specific difference between these three species are found in the markings of the spores and elaters, or threads, and may be summarized from the description of Rostafinski as follows :

“ The spores of all are globose and provided with external ridges or thickened bands of varying shape raised upon the surface of the spores.”

In *Trichia chrysosperma*, these ridges are uniform in width, forming a network of polygonal meshes, each ridge being of greater height than width. In *Tr. affinis* and *Tr. Jackii*, the ridges are of greater width than height, and are fitted with cylindrical, well-like openings perpendicular to the surface of the spore, which pits are characteristic of these two species only. The spore bands of *Tr. affinis* are not uniform in width and form a network of irregular meshes provided with a single row of pits in the median line of the bands. The spore bands of *Tr. Jackii* either branch irregularly, or form an irregular net, or appear as an irregular spot with a wavy outline, all, however, sometimes in the same spore. These bands are sufficiently wide to give space for a clump, or two or more rows of pits. Again, the elaters of *Tr. chrysosperma* are usually 8.3 mic. m. wide, exceptionally only five mic. m., with from 3—5 spirals, and, connecting each two adjoining spirals, there are thin ridges or veins, parallel to the axis of the elater, as long only as the interspiral spaces. The elaters of *Tr. affinis* are non-spinulose, 4.15 mic. m. wide, with from 3—5 spirals, and the interspiral ridges are wanting. The elaters of *Tr. Jackii* are 4.5 mic. m. wide, with from 3—4 spirals, which are studded with sharp spines sometimes 2 mic. m. in length. The interspaces between the spirals are wider and the interspiral ridges are also wanting. In the summary, only the microscopical features are given.

The following analysis of the results of the examination of a large number of specimens of *Trichia*, obtained from widely separated localities by personal collection or from correspondents, shows some interesting and unexpected facts, and permits conclusions to be drawn which may necessitate a revising of specific lines. By far the larger number of specimens examined were, undoubtedly, *Tr. chrysosperma*, Bull., and as they, with two exceptions, differ in no respect from the typical description, I have omitted them from the list:

1. West Fairmount Park, Philadelphia, Pa. Spores distinctly of the *Tr. Jackii* type with bands pitted, irregularly branched and zigzag in outline; elaters spinulose, 4.5 mic. m. wide; interspiral ridges present, but few in number, irregular and indistinct.

2. Fairmount Park, Philadelphia, Pa. Spores of the *Tr. Jackii* type; elaters spinulose, 4.5 mic. m. wide; interspiral ridges present and distinct.

3. Fairmount Park, Philadelphia, Pa. Spores of the *Tr. Jackii* type; elaters very spinulose, 4.5 mic. m. wide; interspiral ridges present and very distinct.

4. Fairmount Park, Philadelphia, Pa. Spores of the *Tr. affinis* type principally, with a small proportion of *Tr. Jackii* spores; elaters spinulose with short spines, 4.5 mic. m. wide; interspiral ridges present, but not all parallel to axis of elater, some connecting with the adjacent spirals at acute angles.

5. Fairmount Park, Philadelphia, Pa. Spores of the *Tr. Jackii* type; elaters spinulose, 4.5 mic. m. wide; interspiral ridges present but indistinct.

6. Chestnut Hill, Philadelphia, Pa. Spores distinctly of *Tr. affinis* type; elaters slightly spinulose, 4.5 mic. m. wide; interspiral ridges present.

7. Gray's Ferry, Philadelphia, Pa. Spores with broad bands, in a polygonal mesh, with only a single row of pits; elaters 4.5 mic. m. wide, spinulose, spines 1.5 mic. m. long and broad interspaces between spirals; interspiral ridges present and distinct.

8. East Park, Philadelphia, Pa. Spores of *Tr. affinis* type, with some *Tr. Jackii* spores; elaters 4.5 mic. m. wide; spinulose with spines 1.5 mic. m. long; broad interspaces between spirals and interspiral ridges present and distinct.

9. Fairmount Park, Philadelphia, Pa. (L. Thomas); spores distinctly of *Tr. affinis* type, but the bands with broken or interrupted meshes; elaters 4.5 mic. m. wide and spinulose, ends of elaters long and thin; interspiral ridges present and distinct.

10. Thousand Isles, St. Lawrence river. Spores of both *Tr. affinis* and *Tr. Jackii* types, the former somewhat in excess; elaters spinulose, 4.5 mic. m. wide; interspiral ridges present and very distinct.

11. Newfield, N. J. (J. B. Ellis). Spores distinctly of *Tr. affinis* type, occasionally varying to the *Tr. Jackii* type; elaters spinulose, 4.5 mic. m. wide; interspiral ridges present and very distinct.

12. Iowa (E. W. Holway). Spores equally of the *Tr. affinis* and *Tr. Jackii* types; elaters 4.5 to 5 mic. m. wide, minutely spinulose and the interspiral ridges very distinct.

13. Ohio (A. P. Morgan). Spores largely of *Tr. chrysosperma* type, with shallow, irregularly-meshed ridges, the balance passing into a *Tr. affinis* type, with few or many pits, as the width of the bands will permit; elaters 6 mic. m. wide, irregularly spinulose and the interspiral ridges large and distinct.

14. Adirondack Mts., N. Y. Spores typical of *Tr. chrysosperma*; elaters 7.5 mic. m. wide, minutely but densely spinulose, elater ends various, sometimes terminating with a short point, or bluntly without a point but bristling with the ends of the spirals, or with a very long, slender, smooth end three or four times the length of the diameter of the elater; interspiral ridges very numerous, crowded close together and irregular, not all parallel to the axis of the elater.

Of these specimens, Nos. 13 and 14 are varieties of *Tr. chrysosperma*, Bull., No. 13 being a transitional form. All of the other numbers have, in the same sporangia, the pitted, banded spores characteristic of *Tr. affinis* and *Tr. Jackii* only, and elaters with the interspiral ridges characteristic of *Tr. chrysosperma* only. Other irregularities are also noticeable. In Nos. 4, 6 and 9, with spores of a pronounced *Tr. affinis* type, we have spinulose elaters, a characteristic of *Tr. Jackii*, and in Nos. 7 and 8, also with spores of a *Tr. affinis* type, we have in the elaters the broad interspiral spaces belonging to *Tr. Jackii*. With such discrepancies in leading specific characteristics, I can only refer my specimens to *Tr. affinis*, De By., and *Tr. Jackii*, Rfki., provisionally, as I have not been able to obtain authenticated specimens of these species for comparison. The examination was made with a one-sixteenth Zeiss immersion objective, which showed clearly and positively all the points noted. The external appearance of the sporangia of these *Trichias* is sufficiently different to enable one, with a little experience, to separate readily the pitted spore species from *Tr. chrysosperma*. The former cannot be distinguished from each other, without the aid of the microscope, with any degree of certainty.

NEW SPECIES OF FUNGI FROM VARIOUS LOCALITIES.

BY J. B. ELLIS AND B. M. EVERHART.

A large proportion of the species here described were collected by the Rev. A. B. Langlois, in Louisiana, mostly in Plaquemines county, ~~not~~ ^{near} 200 miles from Baton Rouge.

DACRYMYCES CORTICIOIDES, E. & E., var. CANIGENA.—On scales of pine cones (*P. rigida*), Newfield, N. J., May, 1886. Orbicular, about 1 millim. diam., flattish, convex, centrally attached, pale yellow,

margin slightly pubescent, soon confluent; sporophores at first cylindrical $75-80 \times 3-4 \mu$, at length branching above and bearing globose bodies (the true sporophores?) $7-8 \mu$ in diam., attached, two or three together, in an imperfectly racemose manner, both lateral and terminal. Many of the erect threads remain sterile and resemble the paraphyses of a *Peziza*. A re-examination of the specimens published in Vol. I, p. 149, of this JOURNAL, and distributed in N. A. F., No. 1587, shows, though less distinctly, the presence of the globose bodies just mentioned, and these should, perhaps, be considered as the true sporophores.

PEZIZA (TAPESIA) HETEROMORPHA, E. & E.—On the base of culms of the *Spartina polystachya*. May. Langlois, No. 458. Subiculum brown-black, forming a felt-like coat extending for some inches along the culm and consisting of densely matted hyphæ; receptacles scattered, globose at first, with a small, round opening with a white margin and pallid-white disk (hymenium), at length expanding to nearly plane or even slightly convex, with margin subundulate and disk flesh colored, $2-3$ millim. diam.; asci clavate-cylindrical, about $70 \times 6-7 \mu$, with abundant paraphyses; sporidia eight in an ascus, fusoid-cylindrical, slightly curved, hyaline, $3-4$ -nucleate, with endochrome at length three times divided (pseudo-septate), about $20 \times 2\frac{1}{2}-3 \mu$. The young receptacles are clothed with whitish, spreading hairs.

COSCINARIA, Ell. & Everhart, nov. gen.—Perithecia membranaceous, multi-perforate above; asci and sporidia (in the single species known) linear. The genus pertains to the *Pyrenomyces*.

C. LANGLOISII, E. & E.—On dead stems of *Vigna*^{2a} *luteola*. June, 1886. Langlois, No. 487. Perithecia tuberculiform, erumpent, soft, $\frac{1}{2}-\frac{1}{2}$ millim. in diam., pale flesh-color or horn-color when fresh, becoming nearly black when dry, surrounded by the ruptured epidermis, of cellular-fibrose structure, convex or nearly plane above and pierced with $25-30$ small, round holes (ostiola); asci linear, $150-200 \times 5 \mu$; paraphyses (?); sporidia filiform, multinucleate, nearly as long as the asci and 1μ thick, nearly hyaline. The perithecia sometimes fall out and leave little pits where they stood. They resemble, outwardly, a small *Tubercularia*.

HYPOXYLON BICOLOR, E. & E.—On dead limbs of *Quercus virens*. Langlois, No. 344. Stroma tubercular-hemispheric, about 2 millim. across, surface slightly even from the subjacent perithecia and punctate from their ostiola almost as in *H. punctulatum*, B. & Rav., color dull reddish or purplish outside and light yellow within; perithecia subperipheric, closely packed, about $\frac{1}{2}$ millim. in diam.; asci narrow cylindrical with a slender base, about $100 \times 6 \mu$; sporidia in a single series, subnavicular or narrow elliptical and subinequilateral, pale yellowish at first, then opaque, $1-2$ nucleate, $9-12 \times 3\frac{1}{2}-4\frac{1}{2} \mu$, ends subacute. Closely allied to *H. fuscum*, Pers., from which it differs but little outwardly, but the stroma, yellow inside, will distinguish it.

DIATRYPE COMPTONÆ, E. & E.—On dead, partially decorticated stems of *Comptonia asplenifolia*, Newfield, N. J., May, 1886. Stroma erumpent, subtuberculiform, small (1–3 millim.), subhemispheric or elongated, dull black outside, whitish within and consisting of the scarcely altered substance of the wood; perithecia often single in the smaller stromata, or in the larger and more elongated ones 2–12, with thick walls, ovate or subangular from mutual pressure, $\frac{3}{4}$ – $\frac{1}{2}$ millim. in diam., contracted above into a short neck, with a short, cylindrical or subconic, slightly projecting, smooth ostiolum; asci clavate, 75–85 μ long, including the slender, stipitate base, surrounded with abundant paraphyses and containing eight subfusoid, yellowish-brown, 3-septate, slightly curved, 12–15 x 4–5 μ sporidia, which are crowded into the upper half. The general appearance is much like that of *D. quercina*, Fr., var. *lignicola*, C. & E. The ostiola are not sulcate and have a smooth, round opening. The stromata arise either directly from the wood or are seated on the lower stratum of the bark denuded by the flaking off of the superficial layer.

(To be continued.)

NOTES ON FLORIDA FUNGI.--No. 7.

BY W. W. CALKINS, CHICAGO, ILLINOIS.

THE POLYPORI.

The following species, collected in Florida during the past winter, were studied and named by Mr. Ellis, and are the subject of the first complete paper by me in a series intended to embrace all the results of my investigations in that prolific field. Florida, projecting southward for four hundred miles and washed by the shores of two oceans, her climate tempered also by the Gulf stream, naturally offers superior and unique advantages to the naturalist which cannot be enjoyed in any other section of our country. From its geographical and subtropical position and close proximity to the West Indies, we may reasonably expect to find in the southern part of Florida a cryptogamic flora similar to that of those islands. This has proven true of her phænerogamic botany, and, so far as explored, no less so in the lower forms. Therefore we regard mycologic study in this field as more than usually interesting. Thus far the efforts of two or three others and of myself have been confined to a narrow strip of country adjacent to Jacksonville, which locality is *extra-limital* as regards the species of subtropical Florida, a region that fairly begins somewhat further south. We have, however, already found what may be called *waifs* from the Indies, and may expect to find in the southern half of the peninsula an exact counterpart of the adjacent Bahamian mycologic flora.

1. POLYPORUS GILVUS, Fr.—Very abundant on old logs and on standing decayed *Quercus laurifolia*. *P. scruposus*, Fr., is the same thing.
2. POLYPORUS ARCULARIUS, Fr.—Extremely abundant on dead fallen limbs.
3. POLYPORUS PERGAMENUS, Fr.—Very common with the preceding species.
4. POLYPORUS AUSTRALIS, Fr.—From Tampa. A tropical species, and not occurring northward so far as explored.
5. POLYPORUS SANGUINEUS, Fr.—Very common on decayed logs.
6. POLYPORUS LICNOIDES, Mont.—Found rarely near Jacksonville, on decayed *Quercus*. Tropical also.
7. POLYPORUS NIPHODES, B. & Br.—A beautiful white species, found on dead limbs of *Carya* exclusively.
8. POLYPORUS CARNEUS, Nees.—Very beautiful. Rare in decayed places on *Juniperus Virginiana*, in deep swamps. Also rare on *Pinus australis*.
9. POLYPORUS VIRGINEUS, Schw.—On decayed stump. Rare.
10. POLYPORUS HALESLÆ, B. & C.—On fallen limbs in damp places. Not common. Resembles *P. Salleanus*, Berk. Very beautifully colored in rose and lilac shades.
11. POLYPORUS PLEBEIUS, Berk.—A large and elegant species, found on decaying *Quercus laurifolia* and on *Carya*. Not common. Of a beautiful purplish color when fresh.
12. POLYPORUS HIRSUTUS, Fr.—A common and variable species. On old logs and dead limbs.
13. POLYPORUS VELUTINUS, Fr.—By many considered a variety of the preceding species. On dead *Magnolia*. Distinctly pileate.
14. POLYPORUS VERSICOLOR, Fr.—Resupinate; beautiful. Common on dead limbs.
15. POLYPORUS ADUSTUS, Schw.—Common. Collected specimens four feet long. On dead *Magnolia* logs.
16. POLYPORUS CHARTACEUS, B. & R.—A beautiful species. Not common. On dead limbs.
17. POLYPORUS ARGILLACEUS, Cke.—Rare on dead bark.
18. POLYPORUS OBLIQUUS, Fr.—Abundant on small, decayed limbs. Resembles *P. ferruginosus*.
19. POLYPORUS ABIETINUS, Fr.—On fallen pine limbs. Not common.
20. POLYPORUS CONTIGUUS, Fr.—Occasional on decayed logs.
21. POLYPORUS HYPOCOCCINUS, B.—The rarest species found. One good specimen only.
22. POLYPORUS XANTHOLOMA, Schw.—On dead limbs of *Quercus nigra*.

23. *POLYPORUS ALABAMÆ*, B. & C.—A rare and beautiful species; white. On a dead hickory limb.

24. *POLYPORUS CINNABARINUS*, Fr.—Only a few specimens found on a dead *Magnolia* log.

25. *POLYPORUS HEMILEUCUS*, B. & C.—Abundant on dead *Carya* and *Magnolia*. Very fine.

26. *POLYPORUS AMOEMUS*, B. & C.—Rather common on old logs.

27. *POLYPORUS SALMONICOLOR*, B. & C.—Not abundant. On fallen trees.

28. *POLYPORUS PURPUREUS*, Fr.—Very beautiful and very rare. Margins lilac color.

29. *POLYPORUS MOLLUSCUS*, Fr.—Pure white, with soft, velvety texture. Rare. On fallen limbs.

30. *POLYPORUS NITIDUS*, Fr.—Common on under side of fallen trees. Has been called *P. vulgaris*.

31. *POLYPORUS VAPORARIUS*, Fr.—Common. Name very appropriate, as the beautiful glistening color soon disappears.

32. *POLYPORUS IGNIARIUS*, Fr.—Occasional in decayed places on living *Quercus*.

33. *POLYPORUS TABACINUS*, Mont.—Abundant on old oak stump.

34. *POLYPORUS LACTEUS*, Fr.—On dead fallen limbs. Not common.

35. *POLYPORUS ECTYPUS*, B. & Rav.—Rare. Found on a small oak stump in a swamp. Very fine.

ELIAS MAGNUS FRIES.

BY WM. R. DUDLEY, CORNELL UNIVERSITY.

ELIAS MAGNUS FRIES was born at Femsjö, Sweden, Aug. 15th, 1794, and died at Upsala, Sweden, Feb. 8th, 1878. Although he had but comparatively little to do, directly, with the fungi of America, no catalogue of our higher fungi can be published but does not show his name as author of a very large number of species which are found here as well as in Europe. He is regarded as the founder of the systematic literature, in a true sense, in that branch of botany. Therefore, as Linnæus and his writings must form a part of every nation's history of its botany, so Elias Fries, another great Swedish botanist,—and next to Linnæus the greatest,—must enter into the history of cryptogamic botany, especially of fungi, wherever and whenever that subject is historically considered.

Fries' career may be said to have been a century later than that of the great baron's; for, although he was born about thirteen years less than a century after the birth of Linnæus, his life was prolonged till Feb. 8th, 1878, or one month after the centenary of the death of his great prototype. There is a curious parallelism extending throughout the whole career of these two men. Both were sons of country clergy-

men, and born in Smaland, in the southern part of Sweden. Both, as lads, attended the school at Wexio, and both entered the University of Lund, although Linnæus remained there only one year, finally taking his degree at Upsala, while Fries graduated at Lund. Both held for many years, as the crowning position of long and distinguished university careers, the professorship of Botany at Upsala, the most famous of the Swedish universities, where each died greatly beloved and honored. They were both voluminous in their authorship,—indeed, they have few parallels, in this respect, in botany,—and the period covered by the work of each also fairly represents the comparative difference in time in development of phænogamic and cryptogamic botany. It has been said, furthermore, that Fries was almost the last of that generation whose knowledge extended over all branches of the science as it was then understood and whose names were considered as authorities in all.

Apparently the life of Fries was marked by no great privations or hardships. The way to his career opened most alluringly even from his boyhood. His father was a zealous and even accomplished botanist, and, as the boy had no brothers or sisters, or even young playmates, his father early led him into a very close acquaintanceship with nature, and made for him friends of the little wild flowers which grew among the wooded hills of Smaland,—“Friends who did not afterwards desert him, but were always true,” as he says many years after. He also says that his interest in fungi began when he was twelve years old by the discovery of the beautiful *Hydnum coralloides* one day, when out in the woods and fields with his mother. Few fungi had been described at that time, and the next day, in attempting to determine his *Hydnum*, he learned in a short time the characters of all the genera described in his “Flora.” When he was fourteen, during the turmoil of the Napoleonic wars, his school at Wexio was closed and he renewed his observations on fungi with the greatest ardor, describing and giving temporary names to those he found. He continued this till 1811, when he left his gymnasium to enter the University of Lund, at which time he had learned to distinguish between three and four hundred species of these plants. At the university he found eminent men of science, among whom was the elder Agardh, then a young man of twenty-six, and who was yet to make his fame as an algologist. Every one showed great kindness to the bright and enthusiastic boy, but he found his greatest delight in the library and its treasures of botanical works. Here he poured over the volumes of Persoon and Albertini, probably also over the *CONSPECTUS FUNGORUM* of Albertini and our own Schweinitz. Here, also, were the earlier volumes of the classic *FLORA DANICA*, begun thirty years before the birth of Fries, and whose completion he did not live to see. Beside the illustrations of the latter work, there were those of Buxbaum and Persoon, and we can imagine how his imagination kindled toward future work as he here recognized many of his old friends of the Smaland woods, such as he had previously described. The three years of his university life passed quickly away, but he maintained an excellent standing, although

he was industriously collecting and working on his fungi. In 1814, he took his degree at Lund, and was immediately nominated "Docens" of botany in that university. His first publication, begun during that year, seems to have been in phænogamic botany, and was entitled, *NOVITIA FLORÆ SUECIÆ*. But in 1815 he published the first part of *OBSERVATIONES MYCOLOGICÆ*, based chiefly on collections made during his university course, the second volume appearing in 1818. He was preparing other papers at the same time on both phænogamic and cryptogamic plants. His keenly-discriminating mind soon saw that the classification previously established for the lower plants was exceedingly defective. He therefore began, when he was not yet twenty-two, a systematic review of all the fungi known to him. The result was more extended and accurate descriptions of species, based on the morphology of the parts, taking into account, also, the life and development of the fungus, wherever that was possible. In theory, his new system of classification also was thoroughly scientific and in line with the most advanced views of the day in regard to systematic botany. It was hailed by all lovers of the subject as the true basis for the scientific study of the lower plants. The publication of this work was begun, it must be remembered, twelve years before the compound microscope was brought into use. Notwithstanding the cordial reception of his new system and his recent work, the indomitable spirit of Fries did not rest satisfied; in 1829, therefore, having completed his first great work on fungi, *SYSTEMA MYCOLOGICUM*, in three volumes, he again revised all his species and descriptions with great care, to test the value of his theoretic conclusions. As he had now begun to pay more especial attention to the *Hymenomycetes*, a third careful survey of this group resulted in his *EPICRISIS SYSTEMATIS MYCOLOGICI, SEU SYNOPSIS HYMENOMYCETUM*, published in 1836-38. In 1844, the Royal Academy of Science, at Stockholm, proposed to bear the expense of a series of colored engravings of all the higher fungi, to be made by or under the supervision of Professor Fries. For this work he again went over all the material obtainable, and the first series of these elaborate figures was published between 1867 and 1875, consisting of 100 folio plates, and entitled, *ICONES SELECTÆ HYMENOMYCETUM NONDUM DELINEATORUM*. At the time of his death, a large number of additional plates had accumulated, and a second similar series, under the same title and of the same number of plates, was issued between 1878 and 1884, edited by his sons. These are estimated to contain nearly 1,700 figures. A second edition of his *HYMENOMYCETES* was issued in 1874, the preface written on his eighty-first birthday. Two other works on fungi might be mentioned as important among his larger publications, viz.: *MONOGRAPHIA HYMENOMYCETUM SUECIÆ*, 1851-63, in two volumes 8vo. and *FUNGI ESCULENTI ET VENENATI SCANDINAVIÆ*, 1862-69, with ninety-three folio plates.

In other fields of botanical science, he has been indefatigable. After holding the adjunct professorship of Botany at Lund for many years, he was called to the chair of Practical Economy at Upsala in 1834.

This, together with the many papers on economic botany and agriculture bearing his name, testify to the esteem with which he was held in practical affairs. It was not many years, however, before he was promoted to the professorship of Botany at Upsala, the chair once held by Linnæus.

In the botany of higher plants, he was a recognized authority till the last, and is the author, in this branch, of ten or twelve works of considerable extent, bearing a variety of titles. These include "Floras" of the whole or parts of Sweden. His papers and schemes embodying his theories of the principles of classification in phænogamic botany deserve a passing notice, as they contain suggestions original with him, and not only attracted attention when they were put forth, but have been utilized, to a considerable extent, by several modern systematists.

In lichenology, also, he was a very active worker during his younger days, but his writing in that field might be said to have culminated as long ago as 1831, when he published his *LICHENOGRAPHIA EUROPEÆA REFORMATA*, regarded for many years as a standard authority on the subject. He also issued fascicles of herbarium specimens of lichens, which are of the highest value.

Finally, beside the larger works, some of which have been mentioned, the Royal Society catalogue, Vol. III and Vol. VII, enumerate the titles of eighty-five lesser papers published by him down to 1873, covering the widest variety of topics in botanical science, and scattered through various periodical publications. This almost unparalleled activity continued to the last. Dr. Lundstrom, of Upsala, says of him that, a week before his death, he completed an essay for a foreign periodical; and, even as his latest hours approached, he reviewed with unclouded mind and critical interest an English publication which had just come to hand, saying that "England has more numerous and more remarkable *Discomycetes* than Sweden, but as regards *Hymenomycetes*, we take by far the lead." Endowed with a vigorous constitution, fortunate in the mental atmosphere in which he was born and reared, fortunate in experiencing no painful delays in beginning his favorite study and no lack of appreciation in their continuance, he was happily free, in his latest hours, from the clouds which settled over the mind of his great predecessor at Upsala. The most interesting portrait of him extant is the last one taken, showing long, white locks escaping from beneath the scholar's cap; and what a delightful, even handsome face had this octogenarian! So well has enthusiasm and singleness of heart preserved the charming characteristics of youth in the keen eye, the kindly but resolute mouth, and the simplicity of character everywhere expressed, that it is not difficult to imagine the boy of twelve on the threshold of a career that was to be both happy and distinguished. This noble man, full of inspiring enthusiasm, is said to have always shown to the younger generation that kindness and encouragement which only the leaders in a science know how to give. Certainly there is much in his portraits that would promise support to such a claim.

NEW LITERATURE.

BY W. A. KELLERMAN.

"KRYPTOGAMEN FLORA VON DEUTSCHLAND, OESTERREICH UND DER SCHWEIZ. PILZE." 23 Lieferung. *Pyrenomyces* (*Sphæriaceæ*). Von Dr. G. Winter.

This part includes pp. 593-656 of Vol. II. Besides the diagnoses and illustrative figures of *Diaporthe*, *Mamiana*, *Valsa*, *Anthostoma*, *Rhynchostoma* and *Kalmusia*, it includes descriptions of 105 species of *Diaporthe*, and more to follow, as this is one of the largest genera of the *Pyrenomyces*. This, like the preceding, is heartily welcomed on account of its high character and of its value to American mycologists.

"LE GLYCOGENE CHEZ LES BASIDIOMYCETES." Rapport de M. Gilkinet, troisième commissaire. *Revue Mycologique*, Juillet, 1886.

"SPHÆROPSIDEES NOUVELLES, RARES OU CRITIQUEES RECOLTEES AUX ENVIRONS DE SAINTES (CHARENTE-INFERIEURE). Par M. Brunard. 1. c.

"UNE NOUVELLE ESPECE DE GASTEROMYCETES, TULOSTOMA JOURDANI." Par M. N. Patouillard. 1. c.

"FUNGI GALLICI EXSICCATI: CENTURIE XXXVIIIe." C. Roumeguere.

"SUR LE DEVELOPPEMENT ACROGENE DES CORPS REPRODUCTEURS DES CHAMPIGNONS." Par M. J. de Seynes. 1. c.

"DIAGNOSES DE TROIS ESPECES NOUVELLES D'ASCOMYCETES COPROPHILES." Par E. Marchal. 1. c.

"LE PERONOSPORA VITICOLA DANS LES VOSGES." A. d'Arbois de Jubainville. 1. c.

"WOODS AND THEIR DESTRUCTIVE FUNGI." By P. H. Dudley, C. E. *Popular Science Monthly*, August, 1886.

"SACCARDO'S SYLLOGE, VOL. IV," is now published. It is devoted to the *Hyphomycetes*, and will prove a valuable aid to those engaged in the study of these perplexing productions. The principle of classification is the same as in the preceding volumes, and in its application here, as in Vol. III, is, perhaps, as satisfactory as any that can be devised. Three thousand five hundred and eighty-three species are enumerated, included in 113 genera. The next volume, which will be devoted to the *Hymenomyces*, is expected to be ready about the end of this year. Copious additions to Vols. I-IV are also being made. E.

"LINHART'S HUNGARIAN FUNGI." Of this valuable collection, five centuries have now been issued. The specimens are mostly satisfactory, and eighty-nine of the species are illustrated by good engravings. The collection is in book form (unbound), and, for a work so carefully prepared, the price, 12 marks per century, is very cheap. E.

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